

THE
QUEER
ISSUE

GENE OCIDE

CAN SCIENTISTS 'CURE' HOMOSEXUALITY BY ALTERING DNA?

HISTORIAN JAMES STEAKLEY is describing how doctors used to lobotomize gay men. The instrument "looked like a knitting needle," he says, "a mechanical scalpel-like thing that would mush up your gray matter. They would target the sexual center of the brain. Later they changed to an electronic tip, so they could burn it out."

Lobotomy was only one "cure" for homosexuality. Castration was another. In the U.S., doctors practiced hormone "therapy" on gay men and removed the clitoris

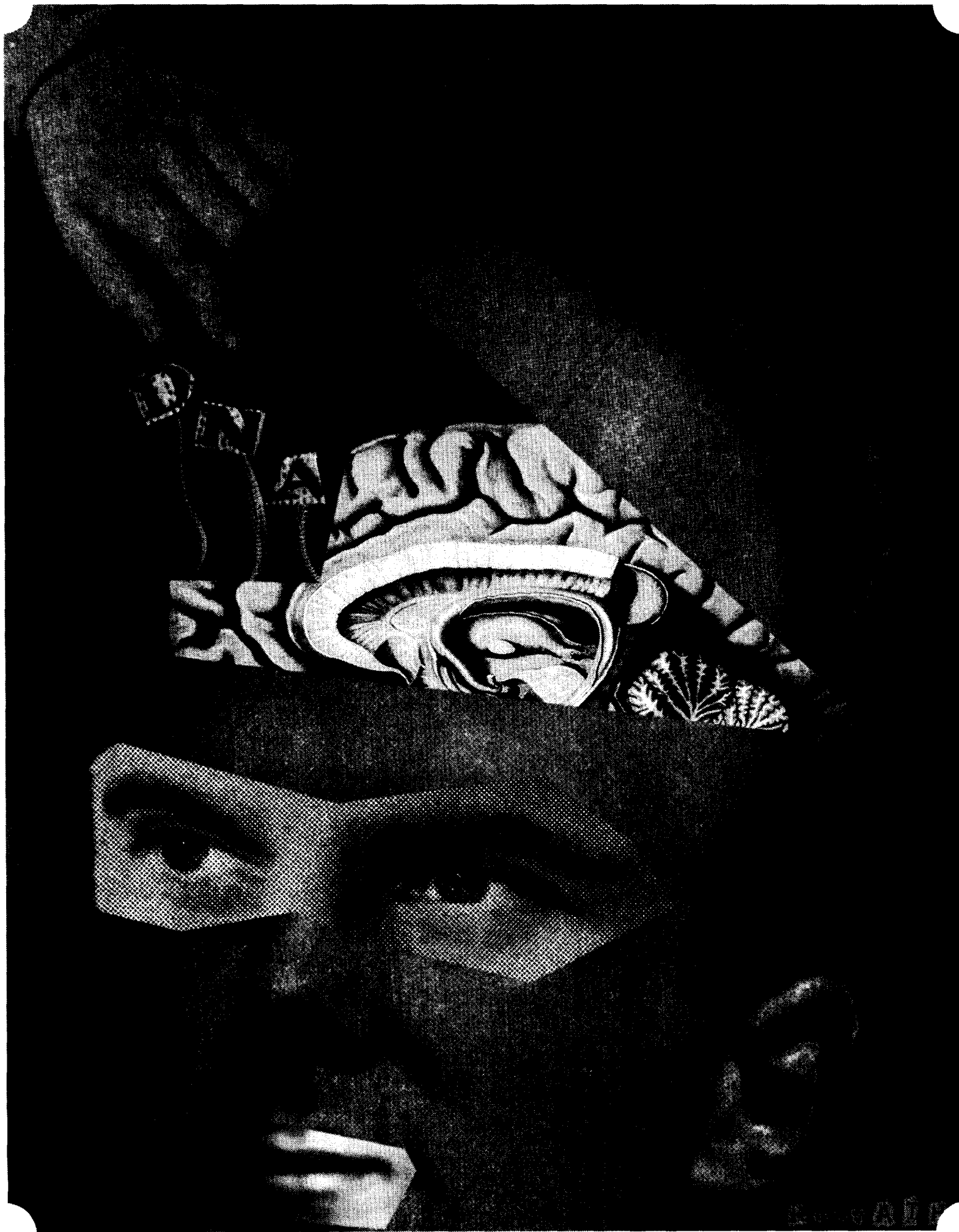
from lesbians. American doctors also tried electroshock therapy and, as late as the 1970s, "aversion therapy," in which gay men were shown male pornography while being injected with drugs that caused them to vomit.

Most of these techniques were meant to be helpful, even kind. Homosexuals would be happier if they could change, doctors commonly thought. Fortunately, the science behind these "cures" was wrong, so all of them failed.

But what if researchers

found something that really does influence sexual orientation? In fact, scientists are searching for precisely that—a genetic component. Their research, combined with the revolution in reproductive technology, could converge like pincers on gay men and lesbians.

"Once you identify the gene, it's really a routine thing" to manufacture a test for it, says Simon LeVay, the researcher who made headlines when he found brain differences between gay and straight men. Soon, he



BY MARK SCHOOFS

ILLUSTRATION BY PETER HORVATH

says, "abortion won't be like it is now, where you pull out a recognizable lump of tissue that looks like a person." Rather, it will be possible to run genetic tests on embryos when they have only a few cells. "What we're talking about here is a democratic, do-it-yourself eugenics," says LeVay. "It could have horrifying consequences."

IN HIS MIND'S EYE, Ronald M. Green, director of the Dartmouth Ethics Institute, keeps seeing a series of human embryos, all fertilized in test tubes, none bigger than a few hundred cells. That's the time when parents choose: Which embryos should be transferred into the mother's uterus to have a chance at life, and which should be discarded?

This is already what happens with in-vitro fertilization. Women take "superovulation" drugs that make them produce about 12 eggs in one cycle, of which only four or five are implanted back into the womb. But as soon as science figures out how to freeze human egg cells—which, Green predicts, will happen in less than five years—women will be able to store their eggs until they are ready to have a child. The proportion of pregnancies conceived through in-vitro fertilization will then soar, he says, and couples will be able to select from perhaps 100 fertilized eggs.

Choosing an embryo is simple now, because genetic testing is in its infancy. Only major diseases (such as cystic
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fibrosis) and abnormalities (such as extra chromosomes) can be detected. But this age of innocence is swiftly drawing to an end. The National Human Genome Research Institute is mapping every gene. If parents knew which embryos were likely to turn out gay, would they discard them?

"Sexual orientation offers the most serious potential for eugenics," says Green, who is heterosexual and the father of two children. "I'm more concerned about it than about the choice of IQ or anything else."

Religion teaches that homosexuality is not just a sin but a disorder, he notes, and many believers "look to AIDS as evidence that this is against God's will." Secular parents might also be tempted. "Even well-intentioned parents often see being gay as a source of suffering, and their instinct to want the best for your child is a powerful one." (Indeed, this is what motivated doctors to attempt previous "cures.") He concludes that if couples from either of these groups "are given the choice of checking a box for which of 12 embryos are chosen, they might well choose the ones that aren't gay or lesbian."

Green insists he's "not apocalyptic." Both he and LeVay believe disaster can be averted through activism and education. "Look at feminism," says LeVay. "If we could have done selective abortions a generation ago, we would have had what we're seeing now in India," where fetuses are commonly aborted because they are female. "But sex selection doesn't happen in America because we've convinced people that a girl's life is worth as much as a boy's. I'm very optimistic we can prevent people from aborting gay kids not by outlawing it, but by changing the world so that people don't want to change sexual orientation."

Ironically, religious belief may actually protect gays. Fundamentalists are convinced life starts at fertilization, so they might feel constrained from aborting an embryo. ("They'd just torture it after it was born," quips gay activist Benjamin Schatz.) But no article of faith would restrain them from "curing" a fetus of its homosexual predisposition.

"I would favor changing [gays] to heterosexuals," says Vinson Synan, dean of Pat Robertson's Regent University. Why? "Because homosexuality is wrong, of course." The former chief rabbi of England, Lord Jakobovits, has given his blessing to eliminating homosexuality through genetic engineering. And Mahdi Bray, president of the National Muslim Political Action Center, an Islamic lobby, says that would offer "another way to help in dealing with the problem of homosexuality."

These religious leaders may yet have a chance to put their beliefs into practice. Scientists are working on ways to *change* human genes, fixing the genetic codes that cause a wide variety of diseases, including cancers and inherited conditions such as hemophilia. Called "genetic therapy" or "genetic surgery," this same technology could be used for "genetic enhancement," the term for maximizing supposedly desirable traits, such as height, or the need for only a few hours of sleep per night.

If there are genes that influence sexual orientation, "we will learn how to interfere with or modify them," says genetic-therapy pioneer Theodore Friedmann. "It's inevitable that's going to happen."

Despite this ominous prospect, not a single major gay organization is mobilizing to cope with these advances. And without activist prodding, the scientific community is keeping a studied silence. Eric Meslin, a director of the Human Genome Research Institute's Ethical, Legal and Social Implications branch, says it would be "inappropriate" to discuss the ethics of genetic testing or therapy for sexual orientation, because his department has funded no work in this area.

Among those who have leaped into this

breach is openly gay journalist Chandler Burr, who wrote a book on the biology of sexual orientation. Last year he published a cover story in the conservative *Weekly Standard* arguing "that a conservatism unremittingly hostile to homosexuality . . . can, and should, embrace the gay gene." One of the main reasons, Burr writes, is the ability to change homosexuality to heterosexuality, something he "would not be opposed to considering" for himself.

AS OF YET, NO ONE has found a specific gene or set of genes that influence sexual orientation. Most scientists ridicule the popular notion that there is a "gene for" any behavioral trait, or that genes mechanistically cause a complex human behavior. What a gene does is produce a protein, which then interacts with millions of other proteins in the body, and with environmental factors from diet to mental stimulation. For sexual orientation, the most genes can probably do is tilt the odds that someone will be gay or straight.

Still, evidence suggests that such genes exist, at least in men. To summarize the findings: Identical twins are more likely to have the same sexual orientation than either fraternal twins or brothers, who are in turn more likely to have the same orientation than adopted brothers.

(These studies sometimes uncover remarkable details, such as the pair of twin brothers who, living in separate cities and without knowing that the other was doing the same, photographed older shirtless construction workers and masturbated to the pictures.)

Studies of women are fewer and less clear. One showed results similar to what was found in gay men, but another produced no evidence that sexual orientation is inherited. Indeed, sexual orientation appears to be quite different in males and females. For example, while men are likely to describe themselves as straight or gay, many women say their orientation can change over time. And there is a clear-cut divergence between men and women in the most startling genetic research conducted so far.

In two studies, geneticist Dean Hamer found a correlation between a particular region on the X chromosome, called Xq28, and male homosexuality. The first study showed that gay brothers were much more likely to share genetic markers from this region than would have been expected by chance. In his second study, Hamer detected no linkage between lesbianism and the Xq28 markers, or any others. But he found again that gay brothers were more likely to share the telltale markers.

He also looked at straight brothers. "Sure enough, more often than not they had opposite DNA markers than their gay brothers," Hamer says. "This tells you there's a sexual orientation gene—get one version and you're more likely to be gay, get another and you're more likely to be straight."

Hamer has not found this gene. In his book *The Science of Desire* he writes, "We narrowed the search to the neighborhood, the X chromosome—and even the block, Xq28—but we didn't find the house." The "block" probably contains about 200 genes. Within 18 months, the genome project will have sequenced this area. Then, says LeVay, "it will be very easy for Dean to go back into his stored blood samples and see exactly which genes" correlate with male sexual orientation.

"It's highly unlikely" that Hamer's research will hold up, insists Stanford researcher Neil Risch. He points to other ballyhooed discoveries, such as a gene for alcoholism, that were later discredited. Indeed, a Canadian team has found no linkage so far between male homosexuality and the X chromosome. This "failure to replicate" is a major reason why scientists are reserving judgment.

Hamer's findings are controversial for other reasons. Some critics question whether homosexuality and heterosexuality are really stable and definable traits. Historian Jonathan Ned Katz points to a New Guinea tribe's rite of pas-

sage, in which boys fellate older men and swallow their semen, but then grow up to have sex with women. How can the terms *homosexuality* and *heterosexuality* define "this variability of historical and social custom?" he asks. "I believe sexuality can never be pinpointed in this way. It's too complex."

Even if Hamer has found a correlation, he may not have found a cause. As researcher William Byne has pointed out, genes might "cause the brain to be wired specifically for homosexual orientation." But it is just as likely that these genes "might influence personality traits that could in turn influence the relationships and subjective experiences that contribute to the social learning of sexual orientation."

It's conceivable that both Hamer and his critics are right. Hamer found men without the "gay" Xq28 markers who nevertheless were homosexual—and straight men with the gay markers. "It's not like a switch," he explains. "Understand what a genetic test will be like. It'll say a fetus has maybe a 7 or 15 per cent chance of being gay instead of the usual 4 per cent chance. That's not much of a test."

But it could be enough. If a couple is staring at a panel of 12 embryos, says Green, "and one has Xq28 markers and the others don't, I think people will begin to engage in that sort of statistical analysis."

IN THE FUTURE, GENES for sexual orientation could be not only identified but altered.

Already, scientists are developing ways to correct genetic defects that cause some diseases and cancers. Their main tool? Viruses, which are little more than chunks of DNA or RNA wrapped in a protein sheath. What scientists do is strip the virus of the elements that cause disease. Next they load it with the genetic "cargo" they want to deliver, such as a gene that corrects a mutation. The altered virus "infects" the proper cells, fixing the genetic flaw.

For adults who might want to change their sexual orientation, the dangers are profound. That's because after a certain point in childhood, the ability to acquire some complex behaviors—such as language—gets foreclosed. In a famous case written about by Oliver Sacks, a 50-year-old blind man was given his sight—but all he could "see" was a chaos of color and light. If the genetic basis of sexual orientation were changed in an adult, "that person would probably feel uncomfortable with their newfound sexuality," speculates LeVay. "All the socially constructed parts, which are substantial, would be out of sync with their new feelings."

"The poor guy would be trying to pick up chicks at Barney's and the opera," Hamer quips. "It would be awful," he says, getting serious. "One couldn't do that in isolation without all sorts of unpredictable consequences."

SINCE GENETIC THERAPY would probably work best on fetuses or newborns, the ramifications are similar to embryo abortion. If a "gay gene" is found, gay people will depend upon the kindness of parents.

Most parents are not that "Orwellian," says Hamer, the father of a 12-year-old girl. "Part of the fun of having kids is that you can't predict everything."

But when push comes to shove, Hamer doesn't trust the world with a genetic test for sexual orientation. "I feel very deeply that such a test should never be developed," he says. "I don't underestimate the power of homophobia, so that's why I believe we will need rules and regulations" governing what genetic tests are allowed. But Congress hasn't even passed a gay rights bill, making it dubious that it would ban genetic testing for homosexuality.

Even "if this choice were available," says Green, "I'm not sure enough people would use it to make a significant impact." Yet, like many experts, his fears keep surfacing. It is "reasonable to assume," Green says, that many parents would terminate their gay embryos, a practice

"that can reasonably be called genocidal."

"Given the stigma around homosexuality," says veteran gay activist Urvashi Vaid, the worst fears "are absolutely realistic." Merely a reduction of gay people could cause great suffering. Green says, "If enough people choose not to have gay and lesbian children, the political power of the community might dwindle," leaving those who live on more vulnerable to "majoritarian tyranny."

Green also worries that "collective harm" might befall the entire human race if the proportion of gay people shrank. He says, "We don't have the wisdom" to know what "the systematic elimination of a naturally occurring gene" would mean to our biological and cultural future. Indeed, studies have shown that homosexuality is linked to childhood gender nonconformity, a technical way of saying that gay boys are often "sissies" and lesbian girls "tomboys." American culture tends to denigrate such nonconformity, but it might leaven both masculine machismo and feminine meekness, making society overall less sexist. For boys, notes sexual-orientation researcher Richard C. Pillard, one of the "gender atypical traits" is fewer fistfights. "I'd like to believe," he says, "that gay people blend the best of male and female."

Of course, not all gay people manifest these traits. But as Elizabeth Birch, head of the Human Rights Campaign, a national gay political group, wonders: "What else are you flushing when you flush sexual orientation?"

DESPITE THE COLOSSAL stakes, "we have never taken it up as an institution, and we have no formal policy," says Birch. Similarly, the National Gay and Lesbian Task Force is sponsoring a talk on the subject, but is taking no other specific measures. "I could give you some PR answer," says Benjamin Schatz, executive director of the Gay and Lesbian Medical Association, "but it would be bullshit. We haven't taken a policy line on this."

Says Vaid, "I don't know of any gay organization that is monitoring the bioethics or regulation of all this." Why isn't her own group—a strategic think tank sponsored by NGLTF—taking action? "I don't know!" she answers, taken aback. "We should. We will."

There is a lot to do. People with AIDS have muscled their way into the design of every trial, the approval of every drug, the debate over every law and regulation remotely affecting the disease. "That's what will be required here," says Birch, "becoming activist-experts who are absolutely steeped in the science and 10 steps ahead of it."

But activists are 10 steps behind, despite the fact that many of the leading researchers in this field—such as LeVay and Hamer—are gay. For example, one reason the genome project hasn't funded any investigations into ethical implications of gay-related research is that not a single proposal addressing sexual orientation has been submitted. What about a consensus statement signed by leading scientists declaring that all sexual orientations are healthy and should not be tampered with? "That's a good idea," says Hamer. But no one is doing it.

"There's a lot of policy obstacles we could put up," Vaid says, starting to brainstorm. "Insurance doesn't pay for cosmetic surgery, and homosexuality is not an illness or ailment that should be corrected. So I think we have some really good grounds to block" reimbursement for a test for sexual orientation or a "cure" via genetic surgery.

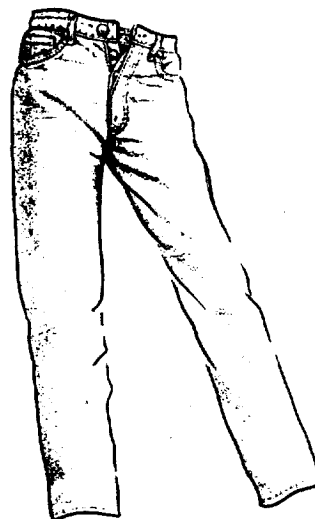
Perhaps the biggest obstacle to political activism is mustering urgency. The danger, after all, seems far in the future, and gay resources are limited. "I have a hard time faulting gay organizations for not prioritizing this when we're still in the middle of an HIV crisis and a hate-violence crisis," says Vaid. But scientists have a different view. "It seems distant," says Pillard. "But, you know, it's later than you think."

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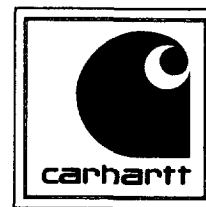
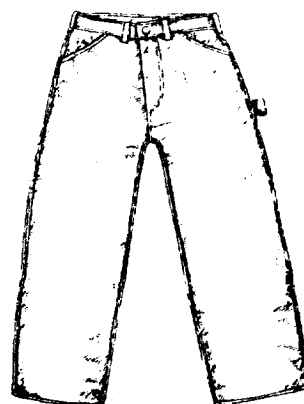
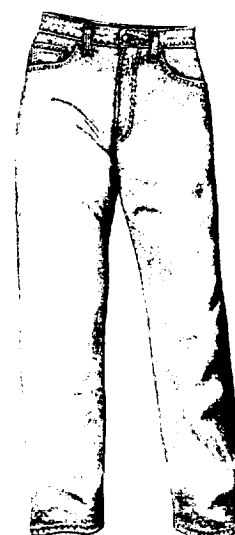
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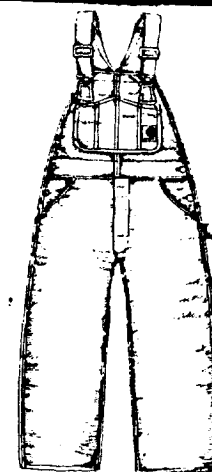
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